

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Beaven et al.

Serial No.: 09/808, 501

Filed: March 14, 2001

For: *Method, System and Computer Program for Deriving and Applying Quality of Service Specifications in a Component-Based Development Environment*

Confirmation No.: 3614

Examiner: Insun Kang

Group Art Unit: 2193

Date: January 12, 2006

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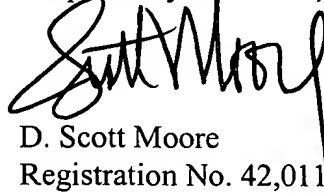
Traci A. Brown

**TRANSMITTAL OF SUPPLEMENTAL APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)**

Transmitted herewith is the SUPPLEMENTAL APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal filed on September 19, 2005, and pursuant to the "Notification of Non-Compliant Appeal Brief" mailed December 27, 2005. **Please note that the Appeal Brief fee of \$500.00 previously was submitted with Appellants' Brief on Appeal dated November 21, 2005.**

It is not believed that an extension of time and/or additional fee(s)--including fees for net addition of claims or for submission of an appeal brief--are required, beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned under 37 C.F.R. §1.136(a). Any additional fees believed to be due in connection with this paper may be charged to Deposit Account No. 09-0461

Respectfully submitted,

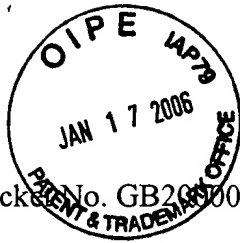

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PATENT

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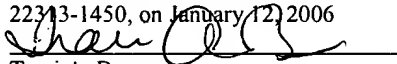
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Traci A. Brown

APPELLANTS' SUPPLEMENTAL BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" filed September 19, 2005 and the "Notification of Non-Compliant Appeal Brief" mailed December 27, 2005.

Real Party In Interest

The real party in interest is assignee International Business Machines, Inc., Armonk, New York.

Related Appeals and Interferences

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

Status of Claims

Appellants appeal the final rejection of Claims 1 - 49, which as of the filing date of this Brief remain under consideration. The claims at issue as included in Appellants' response to the final Office Action of May 18, 2005 are attached hereto as Appendix A.

Status of Amendments

Two responses have been filed in the present case: An "Amendment" was filed October 12, 2004 in response to an Office Action mailed April 9, 2004 (hereinafter "First Action"). A "Response After Final" was filed July 18, 2005 in response to a final Office Action mailed May 18, 2005 (hereinafter "Final Action"). No claims were amended in the "Response After Final" filed July 18, 2005. The rejections were maintained as indicated in an Advisory Action mailed August 15, 2005. No claims have been canceled in prosecuting the present application; therefore, Claims 1 - 49 remain for consideration on the present appeal.

Summary of Claimed Subject Matter

Appellants appeal the final rejection of independent Claims 1 and 18.

Independent Claim 1 is directed to a system for component-based processing. The system includes a component specification element (212, 214 of FIG. 2), a control flow specification element (216, 218 of FIG. 2), a data flow specification element (216, 218, of FIG. 2), a resource specification element (213 of FIG. 2), and a quality of service specification derivation element (220 of FIG. 2). The quality of service specification derivation element (220 of FIG. 2) has for output an application model in combination with a quality of service specification (222 of FIG. 2) derived by implication from relations between components, control flows, data flows and resources (Specification, page 14, lines 6 – 15). The quality of service specification (222 of FIG. 2) is made available to a runtime engine (250 of FIG. 4) for deployment as a runtime contract (222 of FIG. 4) in a runtime processing environment (Specification, page 12, line 1 – page 13, line 8; page 16, lines 10 – 22). Thus, independent Claim 1 recites a quality of service specification derivation element in which a quality of service specification is derived by *implication* from relations between components, control flows, data flows, and resources. This is described, for example, in the Specification at page 14, lines 6

through 15 where the text explains that the quality of service specification may be derived from quality of service requirements that are explicitly attached to the components or flows and/or from quality of service requirements that are *implicitly* derived from the relationships within model comprising the components, control flows, data flows, and resources.

Independent Claim 18 is directed to a method for component-based processing. A component, control flow, data flow, and resources are specified (Specification, page 13, lines 19 – 26; blocks 300 – 306 of FIG. 3; block 210 of FIG. 2). A quality of service specification is derived by implication from relations between components, control flows, data flows, and resources (Specification, page 14, lines 6 – 15). The quality of service specification (222 of FIG. 2) is made available to a runtime engine (250 of FIG. 4) for deployment as a runtime contract (222 of FIG. 4) in a runtime processing environment (Specification, page 16, lines 10 – 22). Thus, independent Claim 18 recites deriving a quality of service specification by *implication* from relations between components, control flows, data flows, and resources. This is described, for example, in the Specification at page 14, lines 6 through 15 where the text explains that the quality of service specification may be derived from quality of service requirements that are explicitly attached to the components or flows and/or from quality of service requirements that are *implicitly* derived from the relationships within model comprising the components, control flows, data flows, and resources.

Grounds of Rejection to be Reviewed on Appeal

Independent Claims 1 and 18 stand rejected under 35 U.S.C. §102(a) as being anticipated by the article entitled "Volume II: Technical Concepts of Component-Based Software Engineering, 2nd Edition" by Bachmann et al. (hereinafter "Bachmann").

Argument

I. Introduction to 35 U.S.C. §102 Analysis

Under 35 U.S.C. § 102, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d

1051, 1053 (Fed. Cir. 1987)). "Anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." *Apple Computer Inc. v. Articulate Sys. Inc.*, 57 U.S.P.Q.2d 1057, 1061 (Fed. Cir. 2000). "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" M.P.E.P. § 2112 (citations omitted).

A finding of anticipation further requires that there must be no difference between the claimed invention and the disclosure of the cited reference as viewed by one of ordinary skill in the art. *See Scripps Clinic & Research Foundation v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). In particular, the Court of Appeals for the Federal Circuit held that a finding of anticipation requires absolute identity for each and every element set forth in the claimed invention. *See Trintec Indus. Inc. v. Top-U.S.A. Corp.*, 63 U.S.P.Q.2d 1597 (Fed. Cir. 2002). Additionally, the cited prior art reference must be enabling, thereby placing the allegedly disclosed matter in the possession of the public. *In re Brown*, 329 F.2d 1006, 1011, 141 U.S.P.Q. 245, 249 (C.C.P.A. 1964). Thus, the prior art reference must adequately describe the claimed invention so that a person of ordinary skill in the art could make and use the invention.

Appellants respectfully submit that the pending independent claims are patentable over the cited reference for at least the reason that the cited reference does not disclose or suggest each of the recitations of the independent claims. The patentability of the pending claims is discussed in detail hereinafter.

A. Independent Claims 1 and 18 are Patentable over Bachmann

Independent Claims 1 and 18 stand rejected under 35 U.S.C. §102(a) as being anticipated by Bachmann. Independent Claim 1 is directed to a system for component-based processing and recites, in part:

...
a quality of service specification derivation element having for output an application model in combination with a quality of service specification derived by implication from relations between components, control flows, data flows, and resources;
...(Emphasis added.)

Independent Claim 18 includes similar recitations. As highlighted above, independent Claim 1 recites a quality of service specification derivation element in which a quality of service specification is derived by *implication* from relations between components, control flows, data flows, and resources. This is described, for example, in the Specification at page 14, lines 6 through 15 where the text explains that the quality of service specification may be derived from quality of service requirements that are explicitly attached to the components or flows and/or from quality of service requirements that are *implicitly* derived from the relationships within model comprising the components, control flows, data flows, and resources.

The Final Action cites section 5.2.3 of Bachmann as disclosing the use of specified quality attributes in a component-based software system. (Final Action, page 3). The Final Action further cites a passage from section 6.1 of Bachmann related to a contractually specified interface specification in which functional properties of a component are specified. (Final Action, page 3). In the "Response to Arguments" section of the Final Action on pages 9 and 10, the Final Action appears to state that Bachmann discloses the general concept of a component-based software model along with the general concept of a quality of service aspect to the component-based model. The Final Action further appears to state that Bachman discloses the concept of a service contract in which "contractual mutual obligations ensure that independently developed components obey certain rules so that components interact (or can not interact) in predictable ways..." (Final Action, page 9).

Appellants acknowledge that Bachman discloses a general model for component-based software design and implementation. Appellants respectfully disagree, however, that Bachmann discloses implicitly deriving a quality of service specification by *implication* from relations between components, control flows, data flows, and resources. In sharp contrast to the recitations of independent Claim 1, Bachmann explains in Section 6.1 that the contractually specified interface is *explicitly* implemented by a developer in an application-programming


interface (API) through the use of an assertion language. (Bachman, section 6.1, first paragraph). Moreover, Bachman does not appear to contain any disclosure in section 5.2.3, where the concept of specifying a quality of service is introduced, related to the derivation of such quality of service attributes. Rather, section 5.2.3 of Bachmann appears to focus primarily on a formal notation for describing such quality of service attributes in a component-based software design. Thus, while Appellants acknowledge that Bachmann describes the use of an API that is *explicitly* created by a developer and that defines the agreements between a client and a component (Bachman, section 6.1, paragraph one, first sentence), Appellants respectfully submit that Bachmann does not disclose or suggest deriving a quality of service specification by *implication* from relations between components, control flows, data flows, and resources as recited in independent Claim 1.

For at least the foregoing reasons, Appellants respectfully submit that independent Claims 1 and 18 are patentable over Bachmann and that dependent Claims 2 – 17 and 19 - 49 are patentable at least by virtue of their depending from an allowable claim. Accordingly, Appellants respectfully request that the rejection of independent Claims 1 and 18 be reversed based on the failure of the Examiner to establish a prima facie case of anticipation under 35 U.S.C. §102 for at least these reasons.

II. Conclusion

In summary, Appellants respectfully submit that, with respect to Claims 1 and 18, the cited reference does not teach all of the recitations of the claims. Accordingly, Appellants respectfully request reversal of the rejection of Claims 1 and 18 based on the cited reference.

Respectfully submitted,



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APPENDIX A

1. (Original) A system for component-based processing, said system comprising: a component specification element; a control flow specification element; a data flow specification element; a resource specification element; and a quality of service specification derivation element having for output an application model in combination with a quality of service specification derived by implication from relations between components, control flows, data flows and resources; wherein said quality of service specification is made available to a runtime engine for deployment as a runtime contract in a runtime processing environment.

2. (Original) A computer system as claimed in claim 1, further comprising a runtime engine for deploying said runtime contract.

3. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a messaging requirement contract.

4. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a transactionality requirement contract.

5. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a security requirement contract.

6. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a recoverability requirement contract.

7. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a completion requirement contract.

8. (Original) A computer system as claimed in claim 7, wherein said runtime contract comprises a completion requirement contract specifying transactional behavior.

9. (Original) A computer system as claimed in claim 7, wherein said runtime contract comprises a completion requirement contract specifying compensation behavior.

10. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises at least one of a reliability, availability and serviceability requirement contract.

11. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a quality of delivery requirement contract.

12. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises at least one of a priority requirement and a response goal requirement contract.

13. (Original) A computer system as claimed in claim 1, wherein said runtime contract comprises a performance requirement contract.

14. (Original) A computer system as claimed in claim 1, wherein said quality of service specification is stored in a repository.

15. (Original) A computer system as claimed in claim 1, wherein said quality of service specification is stored in a tagged markup language.

16. A computer system as claimed in claim 15, wherein said tagged markup language is XML.

17. (Original) A computer system as claimed in claim 1, wherein said quality of service specification is stored in a modeling language.

18. (Original) A method for component-based processing, said method comprising the steps of: specifying a component; specifying a control flow; specifying a data flow; specifying a resource; and deriving a quality of service specification by implication from relations between

components, control flows, data flows and resources; wherein said quality of service specification is made available to a runtime engine for deployment as a runtime contract in a runtime processing environment.

19. (Original) A method as claimed in claim 18, further comprising the step of deploying said runtime contract by a runtime engine.

20. (Original) A method as claimed in claim 18, wherein said runtime contract comprises a transactionality requirement contract.

21. (Original) A method as claimed in claim 18, wherein said runtime contract comprises a security requirement contract.

22. (Original) A method as claimed in claim 18, wherein said runtime contract comprises a recoverability requirement contract.

23. (Original) A method as claimed in claim 18, wherein said runtime contract comprises a completion requirement contract.

24. (Original) A method as claimed in claim 23, wherein said runtime contract comprises a completion requirement contract specifying transactional behavior.

25. (Original) A method as claimed in claim 23, wherein said runtime contract comprises a completion requirement contract specifying compensation behavior.

26. (Original) A method as claimed in claim 18, wherein said runtime contract comprises at least one of a reliability, availability and serviceability requirement contract.

27. (Original) A method as claimed in claim 18, wherein said runtime contract comprises a quality of delivery requirement contract.

28. (Original) A method as claimed in claim 18, wherein said runtime contract comprises at least one of a priority requirement and a response goal requirement contract.

29. (Original) A method as claimed in claim 18, wherein said runtime contract comprises a performance requirement contract.

30. (Original) A method as claimed in claim 18, wherein said quality of service specification is stored in a repository.

31. (Original) A method as claimed in claim 18, wherein said quality of service specification is stored in a tagged markup language.

32. (Original) A method as claimed in claim 31, wherein said tagged markup language is XML.

33. (Original) A method as claimed in claim 18, wherein said quality of service specification is stored in a modeling language.

34. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 18.

35. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 19.

36. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 20.

37. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 21.

38. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 22.

39. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 23.

40. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 24.

41. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 25.

42. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 26.

43. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 27.

44. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 28.

45. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 29.

46. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 30.

47. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 31.

48. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 32.

49. (Original) A computer program comprising computer program code to, when loaded and executed on a computer, cause said computer to perform the steps of a method as claimed in claim 33.

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APPENDIX B – EVIDENCE APPENDIX

None

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APPENDIX C – RELATED PROCEEDINGS APPENDIX

None.